Amendments to the Specification: Please replace the Title with the following amended Title:

METHOD AND DEVICE FOR DETERMINING THE PARAMETERS OF ~~A~~ FLUCTUATING FLOW

Please add the following new paragraph after the Title and before the first line of the paragraph ending on line 4, page 1.

This application is a U.S. National Phase Application of PCT International Application No. PCT/AT2005/000044, filed February 2, 2005.

Please add the following new Heading at line 1, page 1.

FIELD ON THE INVENTION

Please add the following new Heading at line 10, page 1.

BACKGROUND

Please add the following new Heading at line 22, page 4.

BRIEF DESCRIPTION

Please replace the paragraph, beginning at line 23, page 4, with the following rewritten paragraph:

~~It is thus an object~~Thus, one aspect of the invention ~~to provide~~provides a method and a measuring system which reduces the wide-range sensitivity of a capacitive measuring system for the measurement of a dielectric property and thereby makes it possible to reduce the distance between two observation sites.

Please replace the paragraph, beginning at line 28, page 4, with the following rewritten paragraph:

A further ~~object~~ aspect of the invention ~~is to bring about~~provides reduced averaging of fluctuations by increasing local sensitivity. Both features lead to an improvement in the determination of the velocity/velocity profile and density/density profile of a stream of transported material.

Please replace the paragraph, beginning at line 1, page 5, with the following rewritten

paragraph:

~~A~~ Yet a further ~~object~~ aspect of the invention ~~consists in keeping down~~comprises reducing the complexity of the electronic circuit and thus the costs of production, particularly when a plurality of electrodes is used.

Please replace the paragraph, beginning at line 9, page 5, with the following rewritten paragraph:

To achieve at least one of these ~~objects~~ aspects in a device of the type mentioned at the outset, the invention provides for AC voltage signals to be fed to a first transmitting electrode configuration located upstream and to a second electrode configuration located downstream and the resulting signals received in a receiving electrode configuration located between the transmitting electrodes are detected by means of dielectric currents and are subjected to a time-discrete cross correlation, the transit times of the fluctuations detected by the electrodes being determined from the results.

Please replace the paragraph, beginning at line 18, page 5, with the following rewritten paragraph:

The ~~objects~~ aspects of the invention are likewise achieved with the aid of a device of the type indicated at the outset, which, according to the invention, is characterized by a first transmitting electrode configuration (S1) located upstream and a second transmitting electrode configuration (S2) located downstream, and a receiving electrode configuration (E) located between the transmitting electrodes, these electrode configurations being provided at the periphery of a stream of a fluid passing through a pipe, and a receiving and evaluation device for detecting the received signals (s_e) produced by dielectric currents, for carrying out a time-discrete cross correlation, and for determining the transit times of the fluctuations detected by the electrodes from the cross correlation values.

Please add the following new Header at line 20, page 6:

BRIEF DESCRIPTION OF DRAWINGS

Please replace the paragraph at line 13, page 7 with the following rewritten paragraph:

Figs. 8a and 8b are side views of two further embodiments of electrode configurations, ~~using~~ with which a velocity distribution profile can be determined,

Please replace the paragraph at line 23, page 8 with the following rewritten paragraph:

By means of the configuration of the electrodes described in the invention and the appropriate evaluation, good decoupling of the transmitting devices is achieved, since the field lines emanating from one transmitting device terminate in the receiving device without first penetrating the field of action of the second transmitting device. The two transmitting devices can consequently be situated at a very short distance from one another in the direction of flow, but separated, at least, by the receiving device, without causing noticeable crosstalk. The short distance which can be achieved using the principle underlying the invention enables noninvasive measurement of the rate of transport even with streams in which fluctuations change greatly in a short time (or over a short delivery distance), for example due to thorough mixing (e.g. strongly turbulent streams). Moreover, the averaging effect, which occurs over long distances, is greatly reduced. As a result, such spatially small disturbances cause correspondingly greater signal amplitudes.

Please replace the paragraph at line 22, page 9 with the following rewritten paragraph:

The measurement of the coupling capacities between the electrodes described is carried out, for example, sequentially by means of a channel, all of the electrodes of the transmitting devices being activated very rapidly in succession. One possibility of measurement and evaluation is now explained with reference to Fig. 14. This shows a block circuit diagram of the measurement circuit in the time division multiplexer variant. By means of a switching device 2, a high-frequency signal is led from a source 1, in the simplest case square wave signals, via a driver circuit AST, in the simplest case switching by AND gates, to the transmitting electrodes S1, S2. By means of capacitive coupling, a dielectric current i flows, which is fed through a measuring converter 6 and subsequent analog-digital conversion ADC 7 to an evaluation circuit 8. The measuring converter possesses a very low input impedance ($R_i < 1/100 \cdot I/(2.\pi.f.C)$), f being the frequency of the high-frequency signal and C describing the coupling capacity between the transmitting and receiving electrodes. The potential of the receiving electrode E is thereby almost at ground (virtual ground) and screening can be carried out passively by ground surfaces.

Please replace the paragraph at line 28, page 11 with the following rewritten paragraph:

Capacitive filling level measurements of vessels are primarily used for upright containers and are known in the prior art. Here, the principle of capacitive filling level measurement is to be applied to horizontal or sloping tubes, since the electrode configuration according to the

invention is also suitable for this purpose. Two exemplary embodiments of that section of tube which is used for the filling level measurement are given in Figs. 3a and Fig. 3b. Fig. 3a is an embodiment which ~~consists of~~comprises a nonconducting tube, to the surfaces of which electrodes are applied. Fig. 3b shows an embodiment in which the described section of tube ~~consists of~~comprises continuous metal strips (electrodes), which are interrupted by nonconducting material such as, for example, plastics material. In its totality, a construction according to Fig. 3b presents a tube which is functional for the transportation or storage of liquids, powders, gases, and solids. The embodiments of Figs. 3a and 3b can be used such that for the purpose of carrying out measurements, the capacities between relevant electrodes and the receiving electrode (see Fig. 4) can be observed. The substance in the tube, the filling level of which is to be determined, possesses a certain relative dielectric constant which is different from the dielectric constant of another medium in the tube (e.g. air). Physically, a change in the dielectric constant means a change in the capacity between the transmitting and receiving devices. For liquids, powders, and solids, a distribution similar to that shown in Figs. 5a to 5c can be assumed. The presence of the substance in the tube, combined with its own relative dielectricity, changes the value of the capacity between the transmitting and receiving devices.

Please replace the paragraph at line 11, page 15 with the following rewritten paragraph:

In Xie C G, Huang S M, Hoyle B S, Thorn R, Lenn C, Snowden D and Beck M S 1992 *Electrical capacitance tomography for flow imaging - system model for development of Image reconstruction algorithms and design of primary sensors* IEE Proc. G 139 89-98, the method of back-projection is described, ~~using~~ with which density profiles can be determined from measured data and known sensitivities. In spite of the modified electrode topology, this method is applicable both to the velocity distribution profile and the density profile.

Please add the following new paragraph at line 18, page 16:

While preferred embodiments of the invention have been shown and described herein, it will be understood that such embodiments are provided by way of example only. Numerous variations, changes and substitutions will occur to those skilled in the art without departing from the spirit of the invention. Accordingly, it is intended that the appended claims cover all such variations as fall within the spirit and scope of the invention.